Project Arrangement
Between the Department of Energy of the United States of America and the MAYAK Production Association For Radiation Effects Research

Purpose:

This Project Arrangement establishes the framework for cooperation and co-support of joint Department of Energy - MAYAK Production Association funded projects under the Joint Coordinating Committee for Radiation Effects Research (JCCRER), established by the Agreement between the Government of the United States of America and the Government of the Russian Federation on Cooperation in Research on Radiation Effects for the Purpose of Minimizing the Consequences of Radioactive Contamination on Health and the Environment (the Agreement).

Responsible Parties:

The responsible parties are the Director of the MAYAK Production Association and the Director of the Office of International Health Programs, Department of Energy (DOE).

Scope:

This project arrangement pertains only to DOE-supported JCCRER projects. Cooperation under this Project Arrangement shall be conducted in accordance with the Agreement.

Understandings:

1. Implementation of MAYAK projects will follow the JCCRER Guiding Principles.

2. Subject to the availability of funds, the DOE will support these projects by fully funding JCCRER-related U.S. expenses and co-funding MAYAK Production Association expenses. The MAYAK Production Association will work with the Ministry of the Russian Federation for Atomic Energy to obtain its share of the co-funded expenses.

3. The DOE's overall contribution of monies will be determined annually and payments made incrementally. DOE funding decisions will depend on the availability of DOE funds, priorities, and the projects' prior year progress.

4. Upon signing of this document by both parties and approval of milestones,

deliverables, and funding levels by DOE, DOE will commence transferring U.S. monies for the first year's work on these projects. Year one milestones for each project are in Annex 1. For subsequent years, annual project milestones will be delineated in new annexes.

5. The MAYAK Production Association will submit semi-annual financial and technical reports for each project. Reporting requirements will be specified in Annex II.

6. The mechanisms for transferring DOE funds to support these projects may vary and will be specified in Annex III.

7. The MAYAK Production Association will ensure that all scientific reports, progress reports, and proposals are provided, both in English and in Russian, to the American and Russian funding agencies, and when requested, to the JCCRER.

Performance:

DOE and the MAYAK Production Association representatives will confer regularly (at least every 4 months) to review the status of milestones and deliverables. Both Russian and U.S. JCCRER representatives will be kept apprised of the results of these discussions.

General Provisions:

Cooperation under this Project Arrangement is in accordance with the laws and regulations under which each party operates. Monies shall be provided subject to the availability of appropriated funds and to the mutual consent of the parties. The parties agree to inform each other of any developments that potentially impact project implementation.

Effective Date and Terminations:

This Project Arrangement shall become effective upon signature by responsible parties below and remain in force for five years. This Project Arrangement may be terminated by either party upon ninety (90) days written notice to the other responsible party.

For the U.S. Department of Energy, Office of International Health Programs

4/2/97

Date:

For the MAYAK Production Assocation

02.04.97

Date:

Annex 1
Milestones and Deliverables through September 1997

DOE (EH-63) will contribute $150,000 to the MAYAK Production Association in FY 1997 for joint DOE-MAYAK Production Association funded projects under the JCCRER (with the exception of the Microfilming Effort, funded separately by DOE through the International Science and Technology Center). DOE and the MAYAK Production Association have agreed that at least 60 percent of this amount will go directly to the scientists working on JCCRER-related projects.

Note: The following are milestones and deliverables ONLY and may not reflect the broad span of activities principal investigators will be working on during this time period for the project(s). The semi-annual progress reports should reflect the full range of activities conducted during this time period.

1. Work with investigators from Directions 1 and 2 to conduct necessary quality assurance and quality control for dosimetry measurements (Reports - September 30, 1997).

2. Initiate and coordinate with other institutes a project leading to reliable databases (Report - September 30, 1997).

3. Work with scientists form Directions 1 and 2 in modelling the data (Report - September 30, 1997).

Note: See attached detailed technical task and dates.

Approved
Director of the Department of
International Health Programs
Dr.F.Hawkins
"May 1 1997

Approved
Project Leader
from PA "Mayak"
Dr.Y.Glagolenko
"1" 04 1997

Technical Task

for conducting cooperative Russian-American works on systematization and analysis of the results of dosimetric control at PA "Mayak".

1997

Basis:

1.Agreement between the Government of the United States of America and the Government of the Russian Federation on cooperation in research of radiation influence for the purpose of lessening the consequences of radioactive contamination on the health of the people and on the environment.

2.Project Agreement between US Department of Energy and PA "Mayak" on research of the radiation influence.

3.Contract № 4/97 of April 1, 1997 for carrying out works on collection and analytical processing of information on irradiation doses and radiation situation at PA "Mayak".

Investigators:

from Russia - PA "Mayak", GGP Hydrospetzgeologia
from USA - DOE Department of International Health Programs.

1.Goal of research.
Collection and analytical processing of information on individual control and radiation situation at PA "Mayak".

2.Subject of works:
In the course of work it is planned:
- collection of information by the results of dosimetric control and methods of its conduction at PA "Mayak". Assessement of quality and reliability of the methods of control.

By the results of the work a report is prepared.
- analysis of the available information data base on dosimetric control. Choice and finetuning of the data base structure.

By the results of the work a report is prepared.
- analytical systematization of information on dosimetric control. Development of methods of modelling to verify data of the control.

By the results of the work a report is prepared.
Works are being carried out in stages according to the Calendar plan.

3.Structure of works.
3.1.Task 1.
Information on individual control of PA "Mayak" personnel and on methods of performance of measurements is collected using records of materials of PA "Mayak". Assessement of quality of measurements and their comparison with the modern methods of control are made.

A report is prepared.
Subject of the report:
Description of the methods of individual control of the personnel, which have been used at PA "Mayak" since 1948. Comparison of the used methods with the modern methods. Assessement of the uncertanties of the data of the control, obtained by different methods.

3.2.Task 2.

In the course of work information data base, available at PA "Mayak", GGP Hydrospetzgeologia and orthers, will be analysed. On the basis of their comparison structure of data base, the most suitable for storage of data on individual control, will be choosen and finetuned.

A peport is prepared.

The subject of the report:

Description of the available data bases and their analysis. Description of the data base structure on individual control of the personnel.

3.3.Task 3.

A statistical analysis and systematization of data on individual control of PA "Mayak" personnel by periods of control, locality of work and applied methods will be performed; possible methods of verification of data depending on conditions of work and on periods of control have been considered.

A report is prepared.

The subject of the report:

The results of statistical processing of data on individual control of PA "Mayak" personnel are given. A method of modelling to verify data is choosen.

4.Expected results:

The executed works will allow:

- approach the creation of data bases on individual control for different groups and categories of personnel of PA "Mayak";
- evaluate the uncertanties of the available data;
- choose methods of verification of data on individual control, obtained in the first years of PA "Mayak" work.

Appendix 1 to the technical task

Calendar plan

of cooperative Russian-American works on systematization and analysis of the results of dosimetric control.

№№	Description of works	Date	Accounts	Organization-investigator
1.	Preparation of a technical task and calendar plan			PA "Mayak" GGP Hydrospetzgeologia
1.1	Working out of the technical task and calendar plan	April 1997	Plan-diagram, technical task	
1.2	Approval of the technical task and calendar plan	April 1997		
2.	The report "Information on dosimetric control and assessement of its quality and reliability".			PA "Mayak", GGP Hydrospetzgeologia
2.1	Collection of information on individual control and on methods of performing the measurements.	May-June 1997		
2.2	Comparison of methods of individual control	July 1997		
2.3	Writing of the report	August 1997		
2.4	Coordination and approval of the report	September 1997		
3	The report "Creation of the structure and verification of information data bases".			PA "Mayak", GGP Hydrospetzgeologia.
3.1	Analysis of the available data bases.	May 1997		
3.2	Finetuning of the structure data base.	June 1997		
3.3	Writing of the report	July 1997	The text of the report	
3.4	Coordination and approval of the report	August 1997		
4	Analytical systematization and modelling of the dosimetric control data			PA "Mayak", GGP Hydrospetzgeologia

4.1	Performance of the statistical analysis of data on individual control	July-August 1997		
4.2	Evaluation of methods of data modelling	May-Duly 1997		
4.3	Choice of the modelling method to verify data	July 1997		
4.4	Writing of the report	August. 1997	The text of the report	
4.5	Coordination and approval of the report	Septem-ber 1997		

Budget Request for The Project

Project Title: Joint project between US DOE and «Mayak» Production Association.

Support Period: April, 1, 1997 - September, 30, 1997

Institution: Close Stock Company «Ecogea»
Address: 4 Marshal Rybalko st., Moscow, 123060, Russia
Tel: (095) 196 0262; **Fax**: (095) 196 3216

Name of the Project Leader:
Yury V. Glagolenko, «Mayak» PA
tel: (35151) 316 59
fax: (35151) 338 26
e-mail: rel@envc.chel.65.chel.su

Name of principal investigator:
Evgeny K. Vasilenko, «Mayak» PA
tel: (35151) 316 59
fax: (35151) 338 26

Name of a contact Person:
Leonid G. Tchertkov, «Ecogea»
tel: (095) 196 0262
fax: (095) 196 3216

Request Items:

Requested Items	**Amount**
A. Equipment	-
B. Supplies	-
C. Travel expenses	-
D. Personnel and other costs	
Scientists	67, 500
Technicians (technical assistance group)	22, 500
Subtotal	90, 000
E. Indirect and other costs	
Salaries (40.5 %)	36, 450
Overheads including the value added tax	
Subtotal to indirect and/or other costs	23, 550
Total cost of the project	150, 000

Project Manager Dr. Yu.Glagolenko

Principal Investigator Dr. E. Vasilenko

Contract Manager Dr. M. Glinsky

Director of «Ecogeya» Company Dr. L. Chertkov

Annex IA
Milestones and Deliverables
from October 1, 1997 through March 31, 1998

DOE (EH-63) will contribute $150,000 to the MAYAK Prodcution Association for FY 1998 for work between October 1, 1997 and March 31,1998 on joint DOE-MAYAK Production Association funded projects(with the exception of the Microfilming Effort. funded separately by DOE through the International Science and Technology Center). DOE and the MAYAK Production Association have agreed that overhead costs will not exceed 40 percent of the scientific costs of this work.

Milestones and deliverables for the funding period April 1998 through September 1998 are listed on the attachment.

Budget Request for stage 2 to the contract 4-97 dated
April 01, 1997 (according to changes and additions for the contract)

Project Title : Joint project between DOE, USA and "Mayak" Production Association.

Support Period: April, 1, 1997 - September, 30, 1997.

Institution: Joint- Stock Company "Ecogeya".
Address: 4, Marshal Rybalko st., Moskow, 123060, Russia.
Tel: (095) 196-02-62 **Fax:** (095) 196-32-16

Project Manager:
Yury Glagolenko, "Mayak" PA. Tel: (35151) 316-59
Fax: (35151) 338-26
e-mail: rel@envc.chel.65.chel.su

Principal Investigator:
Yuri Vasilenko, "Mayak" PA Tel: (35151) 316-59
Fax: (35151) 338-26

Joint Stock Company "Ecogeya":
Leonid Chertkov, Tel: (095) 196-02-6 Fax: (095) 196-32-16

Items of Expenses :

Requested Items	Amount
A.Equipment (see Appendix 1)	27,000
B.Materials	3,000
C.Travel expenses	-
D.Salary Scientists	50,000
Technical experts	18,650
Subtotal	68,650
E.Indirect and other costs	
Salary taxation (40.5 %)	27,800
Third party services	-
Overheads	23,550
Total cost of the project	150,000

Project Manager Dr.Y.Glagolenko

Principal Investigator Dr.E.Vasilenko

Contract Manager Dr.M.Glinsky

Director of "Ecogeya" Company Dr.L.Chertkov

Approved
Head of the Department of
International Health Programs US DOE
Dr.F.Hawkins
"5" Aug 1997

Approved
Project Manager
PA "Mayak"
Dr.Y.Glagolenko
" " 1997

Supplementary Technical Task

to Contract 4-97 dated 01.04.1997
from Russian-American cooperative works
on dosimetry control data generalization and analysis
(Stage 2)

1997

Justification:

1.Cooperative Agreement between the United States of America and the Government of the Russian Federation on in research of radiation effect aiming the reduction of of radioactive contamination consequences on the population health and the environment.

2.Project Agreement between US Department of Energy and PA "Mayak" for studing of radiation effect .

3.Contract № 4-97 dated 01.04. 1997 for work performance, collection and analytical processing of the data on exposure doses and radiation in the area of "Mayak" PA.

Investigators:

Russia side - PA "Mayak", GGP Hydrospetzgeologia
USA side - DOE Department of International Health Programs.

1.Purpose of Srudies.
Collection and analytical information processing on individual control and radiation situation monitoring at PA "Mayak" and downstream the Techa River.

2.Content of work:

TOPIC 1
- chronological description of the liquid radioactive waste dumping from radiochemical production of "Mayak" PA to the Techa River and analysis of the resulted river system component contamination (water, bottom sediments, flood-plain).
Publication of the report based on the obtained results.
TOPIC 2.
- analysis of the working places at reactor and radiochemical production based on estimation of the dose-making factors, detection of the most dangerous places in terms of personnel exposure;
- coordination of the tasks together with epidemiologists on creation of the data base for individual control;
- analysis of the methods of individual dosimetry control of the neutron exposure processing of the methods for retrospective estimation of the individual neutron exposure doses.
Publication of the report based on the obtained results.
3. Milestones.
TOPIC 1.
3.1.Task 1. In is necessary to analyse and generalise the retrospective information on the liquid radioactive waste dumping from radiochemical production of "Mayak" PA in the Techa River and radioactive contamination of the river system conponents. Publication of the report.
- historical background of the waste dumping;
- experimental data (1952-1965) on radioactive contamination of the water, bottom sediments and flood-plain;
- data from the water and radioactive drain at different points of the Techa River;

- basis statements of the numerical model:

TOPIC 2.

Task 1. Analysis of the dose-making factors at the working sites of rector and radiochemical production. Choice of the basic exposure factors (rooms, working places) which produce the biggest contribution in the personnel exposure.

Task 2. Discussion of the data base content and structure with the epidemiologists.

Task 3. Collection of the information on individual neutron exposure dose control for "Mayak" PA personnel and on the measurement methods. Development of the method for retrospective neutron dose estimation. Publication of the report.

Content of the report:

- description of the methods of control of the exposure dose rate for the flow density and neutron exposure spectra applied "Mayak" PA . Data of the control.
- description of the method of retrospective neutron exposure dose estimation for the personnel of "Mayak".

4.The expected results:

TOPIC 1

Performance of the works will allow:

- to formulate the basic statements of the numerical model for retrospective recreation of the radionuclide inventory of the Techa River contamination;
- to obtain the initial information necessary for the numerical model verification.

TOPIC 2

- to choose the sites for further exposure spectra recreation;
- to start the creation of the data base for individual control for epidemiological projects;
- to obtain the initial information and methods for retrospective estimation of the individual doses of the neutron exposure.

Dr E. Vasilenko

8-10-1-301-903-1413
Dr. Libbi White

Appendix
to Supplementary Technical Task

Calendar Plan

of the Russian-American cooperative works
on the dosimetry control data analysis and generalization.

	Work Description	Term of Execution	Deliverables	Executor
1.	Preparation of the technical task and calendar plan.			«Mayak» PSA «Hydrospet ogia»
	1.1 Combination of the technical task and calendar plan	July,1997.	Schedule, technical task	
	1.2 Approval of the technical task and calendar plan	July 1997.		
2.				
	2.1 Information collection on the inventory of the sources of radiation of the basic production sites of reactor and radiochemical production at «Mayak» PA.			«Mayak» P
	2.2 Analysis of the obtained information	August, 1997		
3.	Combination of the registers of the people for which the individual external and internal exposure doses will be recreated.	September, 1997		«Mayak» PSA «Hydrospet ologia»
4.	Report « Analysis of the methods and organization of the individual dosimetry control of neutron exposure. Methods for retrospective individual neutron dose estimation."			«Mayak» PSA «Hydrospet ologia»
	4.1 Information collection on individual control and methods of measurements.	August, 1997		
	4.2 Creation of the methods for retrospective dose estimation	August 1997		
	4.3 Writing of the Draft Report	September 1997	Draft Report	
	4.4 Discussion and correction of the report	February 1998		
	4.5 Approval of the Report		Report	
5.	Report «Analysis of experimental information on water discharge and radioactive contamination of the Techa River system components."			«Mayak» PSA «Hydrospetz ologia»
	5.1 Collection of the retrospective information on water and radioactive drain at different sites of the Techa River.	July, 1997		
	5.2 Collection of the retrospective information on radioactive contamination of the river system (bottom sediments, flood-plai)).	August, 1997		

Work Description	Term of Execution	Deliverables	
5.3.Collection of the meteorological information.	August 1997		
5.4.Analysis and generalization of the collected information, writing of draft report in collaboration with the Americans	Oct/Nov. 1997	Text of Draft Report	
5.5.Short report on progress made during first six months of FY 98 on Projects 1.3; 2.4.	March 1998	Text of the Report	
5.6 Approval of the Report	April 1998	Text of the Report	

Contract manager M. Glinsky

Утверждаю

Директор отдела Международных программ здоровья DOE США

доктор Ф.Хокинс

"5" August 1997

Утверждаю

Руководитель проекта от ПО "Маяк"

доктор Ю.Глаголенко

"__" _____ 1997

ДОПОЛНИТЕЛЬНОЕ ТЕХНИЧЕСКОЕ ЗАДАНИЕ

к контракту № 4-97 от 1.04.97
на проведение совместных российско-американских работ
по обобщению и анализу результатов
дозиметрического контроля
(этап 2)

1997

ОСНОВАНИЯ

1.Соглашение о сотрудничестве в исследованиях радиационных воздействий с целью уменьшения последствий радиоактивного загрязнения на здоровье людей и окружающую среду между Правительством Соединенных Штатов и Правительством Российской Федерации.
2.Проектное соглашение между Департаментом энергетики США и Производственным Объединением "Маяк" по исследованиям радиационных воздействий.
3.Контракт № 4-97 от 01.04.1997 на проведение работ по сбору и аналитической обработке информации доз облучения и радиационной обстановке на ПО "Маяк".

ИСПОЛНИТЕЛИ

от России - ПО "Маяк", ГГП Гидроспецгеология.

от США - Отдел Международных программ здоровья DOE.

ЦЕЛЬ ИССЛЕДОВАНИЙ

Сбор и аналитическая обработка информации по индивидуальному контролю и радиационной обстановки на ПО "Маяк" и по реке Теча.

СОДЕРЖАНИЕ РАБОТ

В ходе работ планируется провести:

Тема 1.
Хронологическое описание истории сбросов жидких отходов радиохимического производства ПО "Маяк" в р.Теча и анализ обусловленного этими сбросами радиоактивного загрязнения компонентов речной системы (вода, донные отложения, пойменные земли).
По результатам работы выпускается отчет.

Тема II.
Анализ рабочих помещений реакторного и радиохимического производств на основании оценок дозообразующих факторов, определение наиболее опасных помещений для облучения персонала.

Координирование задач по созданию базы данных индивидуального контроля с эпидемиологами.

Анализ методов и организации индивидуального дозиметрического контроля нейтронного излучения, разработка методики для ретроспективной оценки индивидуальных нейтронных доз.

По результатам работы выпускается отчет.

СОСТАВ РАБОТ

Тема 1.
Задача 1. Необходимо проанализировать и обобщить имеющуюся ретроспективную информацию о сбросах жидких отходов радиохимического

производства ПО "Маяк" в р.Теча и о радиоактивном загрязнении компонентов речной системы. Составляется отчет.

Содержание отчета:

- описание истории сбросов;
- экспериментальные данные (1952-1965 г.г.) по радиоактивному загрязнению воды, донных отложений, пойменных земель;
- результаты анализа водного и радиоактивного стока на различных участках р.Теча;
- основные положения разрабатываемой математической модели.

Тема II.

Задача 1. Проведение анализа дозообразующих факторов рабочих участков реакторного и радиохимического производства, выбор основных факторов облучения и участков (помещений, рабочих мест), вносивших наибольший вклад в формирование дозовой нагрузки на персонал.

Задача 2. Согласование со специалистами-эпидемиологами состава и структуры базы данных.

Задача 3. Сбор информации по индивидуальному контролю нейтронных доз персонала ПО "Маяк" и методикам проведения измерений. Разработка методики для ретроспективной оценки доз нейтронного излучения. Составляется отчет.

Содержание отчета:

- описание методик контроля мощностей доз плотности потока и спектров нейтронного излучения, применявшихся на ПО "Маяк". Результаты контроля;
- описание методики ретроспективной оценки доз нейтронного облучения персонала ПО "Маяк".

ОЖИДАЕМЫЕ РЕЗУЛЬТАТЫ.

Выполнение работ позволит:

Тема I.

- сформировать основные положения математической модели для ретроспективного восстановления радионуклидного загрязнения реки Теча;
- получить исходную информацию, необходимую для верификации математической модели.

Тема II.

- выбрать участки для дальнейшего восстановления спектров излучения;
- подойти к созданию базы данных по индивидуальному контролю для эпидемиологических проектов;
- получить исходную информацию и методику для ретроспективной оценки индивидуальных доз нейтронного облучения.

Основной исполнитель от ПО "Маяк" Е.Василенко

Приложение к дополнительному
техническому заданию (этап 2)

КАЛЕНДАРНЫЙ ПЛАН

совместных российско-американских работ по обобщению и анализу результатов дозиметрического контроля

№№ п/п	Описание работ	Срок исполнения	Вид отчетности.	Организация-исполнитель
1.	Подготовка технического задания и календарного плана.			
	1.1.Составление технического задания и календарного плана.	Июль 1997 г.	План-график, техн.задание	ПО "Маяк", ГГП Гидроспецгеология
	1.2.Утверждение технического задания и календарного плана.	Июль 1997 г.		
2.	Сбор информации по радиоактивному воздействию на персонал.			ПО "Маяк", ГГП Гидроспецгеология
	2.1.Сбор информации о радионуклидном составе источников излучения основных производственных участков реакторного и радиохимического производства ПО "Маяк".	Июль 1997 г.		
	2.2.Анализ полученной информации.	Август 1997г.		
3.	Составление списков лиц, для которых будут установлены индивидуальные дозы внешнего и внутреннего облучения.	Сентябрь 1997 г.		ПО "Маяк", ГГП Гидроспецгеология
4.	Отчет "Анализ методов и организации индивидуального дозиметрического контроля нейтронного излучения. Методика для ретроспективной оценки индивидуальных нейтронных доз".			ПО "Маяк", ГГП Гидроспецгеология
	4.1.Сбор информации по индивидуальному контролю и методике проведения измерений.	Август 1997 г.		
	4.2.Разработка методики для ретроспективной оценки доз.	Август 1997 г.		
	4.3.Написание отчета.	Сентябрь 97	Текст отчета	
	4.4.Согласование и утверждение отчета.	Сентябрь 1997 г.		
5.	Отчет "Анализ экспериментальной информации по радиоактивному			ПО "Маяк" ГГП Гидроспецгеология

	загрязнению компонентов речной системы р.Теча"			
	5.1.Сбор ретроспективной информации о водном и радиоактивном стоке на различных участках р.Теча.	Июль 1997 г.		
	5.2.Сбор ретроспективной информации о радиоактивном загрязнении речной системы (донные отложения, пойменые земли).	Август 1997 г.		
	5.3.Сбор метеорологической информации.	Август 1997 г.		
	5.4.Анализ и обобщение собранной информации, написание отчета.	Сентябрь 1997 г.	Текст отчета	
	5.5.Согласование и утверждение отчета.	Сентябрь 1997 г.		

Основной исполнитель
от ПО "Маяк" Е.Василенко

Annex IB
Milestones and Deliverables from April 1, 1998 through September 30, 1998

DOE (EH-63) will contribute $165,000 to the MAYAK Production Association for FY 1998 for work between April 1, 1998 and September 30, 1998 on joint DOE-MAYAK Production Association funded projects(with the exception of the Microfilming Effort, funded separately by DOE through the International Science and Technology Center). DOE and the MAYAK Production Association have agreed that overhead costs will not exceed 40 percent of the scientific costs of this work.

Milestones and deliverables for the funding period April 1998 through September 1998 are listed on the attachment.

Approved
Head of the Department
of International Health Programs,
US DOE

Dr.F.Hawkins
"__"_____1997

Approved
Project Manager, «Mayak» PA

Dr.Y.Glagolenko
"__"_____1997

TECHNICAL TASK
to Contract # 3-98 dated 01.01.98
for Russian-American cooperative works
on dosimetry control data generalization and analysis

(Stage 1)]

1998

Justification:

I. Cooperative Agreement between the United States of America Government and the Government of Russian Federation on research of radiation affect aiming the reduction of radioactive contamination consequences on the population health and the environment.

2. Project Agreement between US Department of Energy and PA "Mayak" for studying of radiation effect.

3. Contract № 3-98 dated 01.01.98 for work performance, collection and analytical processing of the data on exposure doses and on radiation situation in the area of «Mayak» PA.

Investigators:

Russian side - "Mayak"PA, GGP Hydrospetzgeologia
USA side - DOE Department of International Health Programs.

1. Purpose of Studies

Collection and analytical information processing on individual control and radiation situation monitoring at «Mayak» PA and downstream the Techa River.

2. Content of work:

TOPIC 1

- *Task 1* Collection of information and development of individual control data base for the selected personnel cohorts. Development of the structure and the software for the data base;
- *Task 2* Collection of information and analysis of the methods of estimation of the gamma-spectrum. Development of the method for retrospective estimation of the spectra at working locations of «Mayak» PA personnel. Method verification and gamma-exposure spectra calculation for 3 working locations;

Publication of the report based on the results of work.
Content of the report:

- description of the methods for power spectra estimation at working locations;
- description of the data of gamma-exposure spectra calculation for 3 working locations.

TOPIC 2

- *Task 1* Development of the analytical and semi-empirical balance model of the transfer of radionuclides with the water of the Techa River;
- *Task 2* To held the series of calculations in order to define numerical parameters of the semi-empirical model. Comparative analysis of the obtained data and experimental data obtained in 1949 - 1996.

Publication of the report based on the results of work.
Content of the report:

- description of the necessary basic information;
- description of the balance model of radionuclide transfer;
- results from calculations and analysis of the obtained results.

4. The expected results:
The work will allow:

Topic 1

- to start the development of the data base on individual control for epidemiological projects;
- to obtain the basic information and methods of retrospective estimation of the power spectra at working locations;
- to verify the method

Topic 2

- to develop and verify the balance model of radionuclide transfer with the water of the Techa River caused by the liquid radioactive waste release from «Mayak» Production Association in 1949 - 1956.

Doctor E.Vasilenko

Appendix 1
to Request for Proposal

Schedule

.of Russian-American cooperative works
on evaluation of monitoring data and analysis
of radiation living conditions of local population.

№№	Description of work	Date	Reports	Actions
1	2	3	4	5
1.	Collection of information on individual control for personnel 1.1 Collection of information on occupational history. 1.2 Collection of the data on individual exposure doses; 1.3 Data analysis and generalization	 April 1998 April 1998 May 1998		PA "Mayak", GGP Hydrospetzgeologia
2	Development of the structure and software for the data base	June 1998		
3	Report «Development of the method for retrospective estimation of the power spectra from gamma-exposure at working locations» 3.1 Data generalization and analysis of the methods of power gamma-spectra estimation; 3.2 Development of the method for retrospective estimation of the power spectra at working locations; 3.3 Verification of the method with calculation of the exposure for 3 working locations; 3.4 Preliminary report; 3.5 Discussion and correction of the report; 3.6 Publication of the report	 April 1998 May 1998 June 1998 July 1998 June 1998 Septe mber 1998		«Mayak» PA PSA «Hydrospetsgeologia» **With the participation of the scientist of the USA**
4	4.1Development of the analytical and semi-empirical model of the radionuclide transfer with the water of the Techa River. 4.2 Development of the program code and adjustment	May 1998 June 1998		«Mayak» PA PSA «Hydrospetzgeologia»
5	Calculations:			

	5.1 Preparation of the primary information 5.2 Alternate calculations 5.3 Data analysis 5.4 Preliminary report 5.5. Coordination and correctives of the report 5.6 Publication of the corrected report	May 1998 June 1998 June 1998 June 1998 August 1998 September 1998	report	«Mayak» PA PSA «Hydrospetzgeologia» With the participation of the scientists of the USA

Doctor E.Vasilenko

Expenses:

Expenditures	Total, $ US	For the project 1.3 $ US	For the project 2.4 $ US
A. Equipment	8.000 22.000	6.500	1.500 15,500
B. Materials	2.000	1.000	1.000
C. Business trips (4 pers. for 2 weeks))	20,000	10.000	10,000
D Salaries			
Scientists	44.000	26.500	17.500
Technicians	24.600	15.000	9.600
TOTAL:	68.600	41.500	27.100
E. Indirect and other costs			
Salary tax (40.5%)	27.775	16.800	10.975
Services from other institutions			
Overheads	23.625 24,025	14.200	9.425 10,125
Total project costs	**150.000** 165,000	**90.000**	**60.000** 75,000

Project Manager Dr.Y.Glagolenko

Principal Investigator Dr.E. Vasilenko

Director of company "Ecogeya" Dr.L.Chertkov

Annex 2
Reporting Requirements/Formats
for DOE-funded JCCRER Projects

Requirements

1. Semi-annually (in October and April), the MAYAK Production Association will submit financial and technical progress reports (see attached format). The first progress report under this arrangement will be due October 31, 1997.

2. Additionally, by May 31 of each year, the Director of the MAYAK Production Association will submit a budget request (see attached format) for the upcoming fiscal year (October 1-September 30). DOE will inform the MAYAK Production Association and principal investigators as soon as possible, and before October 1, of its funding capabilities.

Progress Report

Office of International Health Programs (EH-63), Department of Energy

Sample Format for Quarterly and Semi-Annual Progress Reports,
to be submitted with the attached Financial Report Document
estimated length 2-4 pages

Title of Project:

Pricipal Investigator:

Period Covered in this Report:

I. Summary of Work

One paragraph, summary of annual work proposal. If work has substantively changed, please indicate changes, in more detail, and the date that these changes were agreed to by EH-63 (if previous approval was obtained).

II. Milestones and Deliverables Accomplished During the Reporting Period

Please complete the following information for each milestone:

- Milestone (short summary of results and explanation of any deviations from plan)
- Deliverable(s) for Milestone

III. Other Relevant Information, Including Relevant Trip Reports, Obstacles to Completion of Work Outlined in FY ___ Work Proposal; Unexpected Costs; etc.

IV. Please Provide a List of Papers Published or in Press and/or Formal Presentations Given on this Work. If reprints of papers are available, copies would be appreciated

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[illegible] program

PROGRESS REPORT - FINANCIAL REPORTING FORMAT

Office of International Health Programs (EH-63) Funded Projects/U.S. Department of Energy

Project/Subproject Title:		Date Prepared:			
		Period of Support:			
Institution:					
Complete Address:		E-mail:			
		Telephone #:	Fax #:		
Name of Principal Investigator:					
Name of Contact Person:					
Requested Items			**Budget** (Amt in U S $)	**Prelims*** (Amt in U S $)	**Unobl. $$**** (Amt in U S $)
A. Equipment (If appropriate) (itemize for items costing more than $5,000)					
		Subtotal>			
B. Supplies (If appropriate)					
		Subtotal>			
C. Travel Costs (If appropriate)	**Destination**	**Travel Dates**			
Please list names of travellers					
		Subtotal>			
D. Personnel Costs	**Percent Effort**				
Please list names of staff members and the milestones on which they worked					
		Subtotal>			

FIAN XLS

PROGRESS REPORT - FINANCIAL REPORTING FORMAT

Office of International Health Programs (EH-63) Funded Projects/U.S. Department of Energy

		Budget (Amt in U.S. $)	Items/Prelims* (Amt in U.S. $)	Unobl. $$** (Amt in U.S. $)
E. Other Costs (if appropriate)				
(i.e. Publication Costs/Info. Technology)				
	Subtotal▶			
F. Indirect costs				
(list institutional costs, subcontracts, etc. separately				
	Subtotal▶			
	Total Costs			

Please provide justification and documentation demonstrating prior approval by EH-63 for all items or expenditure that were not on original budget request document.

**Prelims - orders placed, but not yet paid for*

*** unobligated $$ available*

BUDGET REQUEST*

Office of International Health Programs (EH-63) Funded Projects/U.S. Department of Energy

Please include items requested in attachment 1.			
		Date Prepared:	
Project/Subproject Title:		**Period of Support:**	
Institution:			
Complete Address:			
		E-mail:	
		Telephone #:	**Fax #:**
Name of Principal Investigator:			
Name of Contact Person:			
Requested Items			**Est. Amt. in U.S. $$**
A. Itemize Equipment (if appropriate)			
Please list description of equipment (more than $5,000)			
Please justify equipment purchase on separate page(s)		**Subtotal>**	
B. Supplies			
Please identify and justify general supply categories			
on separate page(s)		**Subtotal>**	
C. Estimated Travel Costs	***Destination***	***Travel Dates***	
Please list names of travellers			
Please report justification for travel on separate page(s)		**Subtotal>**	
D. Personnel Costs	***Percent Effort***		
Project Personnel Costs			
Please list names of staff members and milestones they will be working on			
Please list duties of each staff on separate page(s)		**Subtotal>**	
E. Other Costs			
(i.e. Publication/info. Technology Costs)			
Please itemize these costs with explanations for each cost:		**Subtotal>**	
F. Indirect Costs (i.e. institutional costs; subcontracts)			
Please itemize these costs with explanations for each cost:		**Subtotal>**	
		Est. Total	

*Format for all Budget Request / Invoice submissions. This form is not used with an Annual Work Proposal.
It must include a summary of work to be done during the time period that the funds are requested for.
and milestones/deliverables to be achieved.
**Categories that do not apply to your program, please state N/A.

Attachment 1

Additional Justification for Budget Request Form

Office of International Health Programs (EH-63), Department of Energy
(Please attach to the Budget Request Form)

A. *Requested Supplies*

Please justify supply budget.

B. *Requested Equipment*

Please provide information on the cost of each piece of equipment and justify the need to purchase the equipment.

C. *Requested Travel Budget*

Please describe the purpose of each anticipated trip for the upcoming year, the number of people traveling, and the estimated cost.

D. *For Each Person Working on Project List*

- name of individual
- percentage of time to be spent on project
- salary
- milestones to be worked on

E. *Explanation of Indirect Costs*

Please provide a breakdown of all indirect costs. For subcontracts, include description of work to be done (milestones to be performed).

Annex 3
(Updated as of 1/19/98)

DOE will work with the MAYAK Production Association to explore various options for transferring funds to the MAYAK Production Association.

During FY 1997 and 1998, DOE will wire transfer funds through ECOGEYA to the MAYAK Production Association.

For the microfilming effort only, funds will be sent through the ISTC.